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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,042	01/21/2004	Jei-Fu Shaw	08919-099001 / 09A-910930	3786

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EXAMINER	
KUMAR, VINOD	
ART UNIT	**PAPER NUMBER**
1638	

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/763,042	SHAW ET AL.
	Examiner	Art Unit
	Vinod Kumar	1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/21/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-25* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-5, drawn to an isolated polypeptide that is at least 70, 80, 90 or 95% identical to amino acid sequence set forth in SEQ ID NOs: 1-10 or 11 classified in class 530, subclass 350, for example.

II. Claims 6-8, 10, 12, 14 and 22-25, drawn to an isolated nucleic acid sequence encoding a polypeptide set forth in SEQ ID NOs: 1-10 or 11, or a vector comprising said nucleotide sequence encoding said polypeptide, or a host cell comprising said nucleotide sequence encoding said polypeptide, or wherein host cell is an *E.coli*, a yeast, an insect, plant or mammalian cell, or a method of producing said polypeptide, wherein the method comprises culturing the said host cell in a medium under conditions permitting expression of the polypeptide, and isolating the polypeptide, or a transformed plant cell or transgenic plant or method of producing transgenic cell or transformed plant comprising said polypeptide, comprising introducing recombinant nucleic acid encoding a heterologous polypeptide of SEQ ID NOs: 1-10 or 11, or wherein the said polypeptide is expressed in transformed cell, and cultivating the cell to generate a plant, classified in class 800, subclass 289, for example.

III. Claims 7, 9, 11, 13 and 15, drawn to an isolated nucleic acid, that hybridizes to a probe under high stringency conditions containing a sequence from the group consisting of SEQ ID NOs: 12-22; or a complement thereof, or a host cell comprising said nucleotide sequence, or wherein host cell is *E.coli*, a yeast, an insect, mammalian or plant cell, or a method of producing a polypeptide, wherein the method comprises culturing the host cell in a medium under conditions permitting expression of the polypeptide, and isolating the polypeptide, classified in class 436, subclass 69.1, for example.

IV. Claims 16-21, drawn to a transgenic plant lacking a polypeptide containing a sequence of SEQ ID NO: 1-10 or 11, wherein, compared with the wild type plant, the transgenic plant has a higher tolerance to salt, chilling, pathogens, oxidative stress, or water-deficit due to absence of expression of the polypeptide, or a method of producing a transformed cell or transformed plant comprising introducing into a plant cell a nucleic acid that decreases the expression of a gene encoding a polypeptide of SEQ ID NO: 1-10 or 11 and cultivating the cell to generate a plant, wherein the transformed plant cell or transgenic plant has higher tolerance to salt, chilling, pathogens, oxidative stress, or water deficit due to absence of said polypeptide, classified in class 800, subclass 279, for example.

Inventions I and II-III are patentably distinct. The invention of Group I does not require vector for expressing polypeptides in host cell like *E. coli*, yeast, insect, plant or mammalian cell as required by inventions of Group II and III. The Group I invention does not require nucleotide sequences set forth in SEQ ID NOs: 12-22 for hybridization as required by Group III invention. Group I invention requires the polypeptide(s) which are made up of amino acids, whereas, Inventions of Group II-III require nucleotides which are composed of purine and pyrimidine units. Polypeptides of Group I and polynucleotides of Group II are structurally distinct molecules; any relationship between a polynucleotide and polypeptides dependent upon the information provided by the nucleic acid sequence open reading frame as it corresponds to the primary amino acid sequence of the encoded polypeptide. In addition, the information provided by the polynucleotide of Group II-III can be used to make a materially different polypeptide than that of group I. For example, a nucleic acid, which hybridizes to SEQ ID NOs: 12-22, even under stringent conditions, encompasses molecules that contain mutations or stop codons that would result in use of a different reading frame. This may result in encoding a protein that lacks any significant structure polypeptides(s) of Group I. In addition, while a polypeptide of Group I can be made by methods using some, but not all, of the polynucleotide fall within the scope of Group II-III, it can be also obtained from a natural source using biochemical procedures. For example, the polypeptide can be purified from plant tissues using affinity chromatography. Due to these reasons, inventions of Group I and II-III are patentably distinct.

Furthermore, searching the inventions of Group I and II-III together would impose a serious search burden. In the instant case, the search of the polypeptides and the polynucleotides are not coextensive. The inventions of Group I and II-III have separate status in the art as shown by different classifications. In cases such as this one where descriptive sequence information is provided, the sequences are searched in appropriate databases. Additionally, there is search burden also in non-patent literature. There may be journals that only describe expression of the polypeptide. Similarly, there by be journals describing only the polynucleotide sequence i.e. gene. Due to this, it would be burdensome to search the inventions of Group I and II-III together.

Inventions of Group I and IV are patentably distinct. The Group I invention is requires polypeptide set forth in SEQ ID NOs: 1-10 or 11 and does not require transgenic cell or plant expressing these polypeptide(s). Group IV invention requires down-regulation of expression levels of polypeptides set forth in SEQ ID NOs: 1-10 or 11. Further, Group IV invention requires introducing into a plant cell a nucleic acid that decreases the expression levels of polypeptide(s) set forth in SEQ ID NOs: 1-10 or 11, whereas, there is no such requirement for the invention of Group I.

Furthermore, searching the inventions of Group I and IV together would impose a serious search burden. The inventions of Group I and IV have a separate status in art as shown by their classification. The inventions of Group I will require extensive database search pertaining to amino acid sequence set forth in SEQ ID NOs: 1-10 or 11. Search will also include amino acid sequences that are even functionally different

protein but have substantial homology with amino acid sequences set forth in SEQ ID NOs: 1-10 or 11. Invention of Group IV will require search of art pertaining to down-regulation of gene expression, such as, co-suppression, antisense etc. related technologies. The technical literature search for Group I and IV are not coextensive and are highly divergent, and impose an undue search burden, if done together.

Inventions of Groups II and III-IV are patentably distinct. The Group II invention involves expression of polypeptides in plant cells to produce transgenic plant, whereas invention of Group III does not require the regeneration of plant cell into a transgenic plant. Besides, Group II invention requires transgenic plant expressing polypeptides set forth in SEQ ID NOs: 1-10 or 11, there is no such requirement for invention of Group III. Likewise, invention of Group IV requires down regulation or knock out of polypeptides (SEQ ID NOs: 1-10 or 11) to produce transgenic plants with higher tolerance to salt, chilling, pathogens, oxidative stress or water deficit. There is no such requirement for the invention of Group II.

Furthermore, searching the inventions of Group II and Groups II-IV together would impose a serious search burden. The inventions of Group I and Groups II-IV have a separate status in art as shown by their classifications. The invention of Group II will require art search pertaining to hybridization by SEQ ID NOs: 12-22 or a complement thereof. The search will also involve technical analysis of literature pertaining to expression and isolation of polypeptide(s) expressed in wide range of host cells like yeast, insect, *E.coli* , mammalian cell besides plant cells. The technical literature

search for Group II and III-IV are not coextensive and are highly divergent, and impose an undue search burden, if done together.

Inventions of Group III and IV are patentably distinct. The Group III requires hybridization of probe under high stringency conditions containing a sequence set forth in SEQ ID NOs: 12-22 and also requires host cell other than plant cell for a method of producing polypeptide. There is no such requirement for the invention of Group IV. Group IV invention requires expressing gene in transgenic plant cell and subsequently cultivating the said cell into a transgenic plant, whereas there is no such requirement for the invention of Group III.

Furthermore, searching the inventions of Group III and Groups IV together would impose a serious search burden. The inventions of Group III and Groups IV have a separate status in art as shown by their classifications. The invention of Group IV will require art search pertaining to transgenic expression of polypeptide in plant cell and subsequent regeneration of transgenic plant. The technical literature search for Group III and IV are not coextensive and are highly divergent, and impose an undue search burden, if done together.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Applicants are reminded that different nucleotide sequences and amino acid sequences are structurally distinct chemical compounds and are unrelated to one another. These sequences are thus deemed to normally constitute independent and

distinct inventions within the meaning of 35 U.S.C. 121. Absent evidence to the contrary, each such nucleotide sequence and each amino acid sequence is presumed to represent an independent and distinct invention, subject to a restriction requirement pursuant to 35 U.S.C. 121 and 37 CFR 1.141 et seq.

In addition, under 35 USC 121, **Applicants are also required to elect** one nucleic acid sequence and one encoded amino acid sequence to be examined in conjunction with the elected group of claims. For the Groups I, III and IV, one of SEQ ID NOs: 1-11, and for the Group II, one of the nucleotide SEQ ID NOs: 12-22. This requirement is not to be construed as a requirement for an election of species, since each amino acid or nucleotide sequence is not a member of single genus of invention, but constitutes an independent and patentably distinct invention.

Claims 10 and 12 of Group II and 11 and13 of Group III are generic to a plurality of disclosed patentably distinct species comprising an *E. Coli*, a yeast, an insect, a plant or a mammalian cell. Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, even though this requirement is traversed.

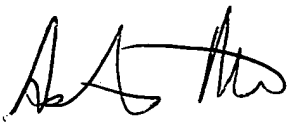
Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

A telephone call was made to Jianming Hao on 15 September, 2005 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinod Kumar whose telephone number is (571) 272-4445. The examiner can normally be reached on 8.30 a.m. to 5.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William (Gary) G. Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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PRIMARY EXAMINER